

2005 Wetland Mitigation Monitoring Report for FAS 1637 (TR 478) Sangamon County, Illinois

Introduction

On September 20, 2005 we evaluated a site that will be used as a wetland mitigation area. This is the second year out of the proposed five years of monitoring at the site. This site was previously monitored and had failed to meet the three criteria of being a wetland. Changes that were made to the project included planting more shrub stage trees. Also, part of the area that failed was deleted from the new plan and a new area was acquired nearby as a substitute for the deleted area. Thus, previous site numbering and boundaries have changed since the original (1998) project request. Site 1 now consists of the original Site 1 plus part of Site 2. Site 2 now consists of part of the original Site 3 plus a new area. Site 2 consists of a borrow area and an old road bed area. Site 1 consists of an old road bed and a previously cropped area. Site 1 is found west of Young Road and Site 2 is located east of Young Road. Site location is NW/4, SW/4, Section 9, T.15N., R.3W. (Mechanicsburg 7.5 minute quadrangle). Some of the previously planted shrub stage trees at these sites that failed are now being replaced with different species of shrub stage trees. Vegetation species lists, soil, and hydrology characteristics, as well as wetland determination forms are noted in this report. Project goals, objectives, and performance criteria are included in this report, as are monitoring methods, monitoring results, summary information, and recommendations.

Goals, Objectives, and Performance Criteria

Goals, objectives, and performance criteria follow those specified in the IDOT project request (M. Sunderland, IDOT, 2004). Performance criteria are based on those specified in the Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987). Each goal should be attained by the end of the five-year monitoring period. Goals, objectives, and performance criteria are listed below.

Project Goal #1: The created wetland mitigation area should be determined to be jurisdictional wetland by current federal definition.

Objective: The created wetland should consist of approximately 5.80 acres of wet floodplain forest. It should satisfy the three criteria of the federal wetland definition: dominant hydrophytic vegetation, hydric soils, and wetland hydrology.

Performance Criteria:

A. Predominance of Hydrophytic Vegetation. More than 50% of the dominant plant species must be hydrophytic.

B. Presence of Wetland Hydrology. The site must have soils saturated to the surface (water table within 12 inches to the surface) or be inundated to a depth of less than 2 meters (6.6 ft) for at least 12.5% of the growing season.

C. Presence of Hydric Soils. Hydric soil characteristics should be present, or conditions favorable for hydric soil formation should persist at the site.

Project Goal #2: The forested wetland plant community should meet standards for survival of planted species and overall floristic composition.

Objective: Planted trees should dominate the site.

Performance Criteria: There should be a 100% survival rate of the planted shrub stage trees. The new wetland mitigation monitoring plan calls for a total of 125 trees for the whole project. There should be at least 125 (100% survival rate) live planted trees each year. Trees will be replanted if needed during the monitoring period.

Methods

Project Goals #1:

Performance Criteria:

A. Predominance of Hydrophytic Vegetation. The method for determining dominant vegetation at a wetland site is described in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987). This method is based on aerial coverage estimates for individual plant species. Each of the dominant plant species is then assigned its wetland indicator status rating (Reed 1988). Any plant rated facultative or wetter (*i.e.*, FAC, FAC+, FACW, and OBL) is considered hydrophytic. A predominance of hydrophytic vegetation in the wetland plant community exists if more than 50% of the dominant species present are hydrophytic.

B. Presence of Wetland Hydrology. The Illinois State Geological Survey (ISGS) is monitoring this site. Well data and analysis will be included in the report. Also, Illinois Natural History Survey personnel will utilize hydrologic field indicators to determine the presence or absence of wetland hydrology as described in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987).

C. Presence of Hydric Soils. INHS personnel will examine soil cores for field indicators to determine the presence or absence of hydric soils as described in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987) and the *Field Indicators of Hydric Soils in the United States* (USDA, 2003). Soil profile descriptions from the sites can be found below.

Photography

Photos were taken in each community facing north and south directions. Photographs are presented in appendix 2.

Results

Project Goal #1: The created wetland mitigation area should be determined to be a jurisdictional wetland by the current federal definition.

Performance Criteria

A. Predominance of Hydrophytic Vegetation.

Dominant hydrophytic vegetation is present at all sites. Site 1 herbaceous layer is dominated by fescue (*Festuca pratensis*, FACU-), marsh elder (*Iva annua*, FAC), and panicled aster (*Aster simplex*, FACW). In the shrub stage tree layer planted species of river birch (*Betula nigra*, FACW), pecan (*Carya illinoensis*, FACW), green ash (*Fraxinus pennsylvanica*, FACW), swamp white oak (*Quercus bicolor*, FACW+), pin oak (*Quercus palustris*, FACW), and the natural vegetation of eastern cottonwood (*Populus deltoides*, FAC+) and trumpet creeper (*Campsis radicans*, FAC) did not constitute enough coverage of the site to be considered dominants.

Site 2 herbaceous layer is dominated by hairy crab grass (*Digitaria sanguinalis*, FACU), pigeon grass (*Setaria glauca*, FAC), fall panicum (*Panicum dichotomiflorum*, FACW-), and fog-fruit (*Phyla lanceolata*, OBL). In the shrub stage tree layer planted species of river birch (*Betula nigra*, FACW), pecan (*Carya illinoensis*, FACW), green ash (*Fraxinus pennsylvanica*, FACW), swamp white oak (*Quercus bicolor*, FACW+), and pin oak (*Quercus palustris*, FACW) did not constitute enough coverage of the site to be considered dominants.

B. Presence of Wetland Hydrology.

Detailed hydrologic monitoring by the Illinois State Geological Survey (ISGS) is being performed at this site. Both areas occur in the Sangamon River floodplain. There were no visual signs of wetland hydrology present at site 1. This site seems fairly high for the most part. Correspondence with ISGS personnel (Eric Plankell), stated that during times of high water on the Sangamon River, flooding may occur in the floodplain forest to the west of the site and also briefly onto Site 1. This water recedes quickly though and ISGS failed to measure any wetland hydrology at the site for the second monitoring year. Furthermore, a deep borrow area south and east of this site may play a role in limiting water on the site.

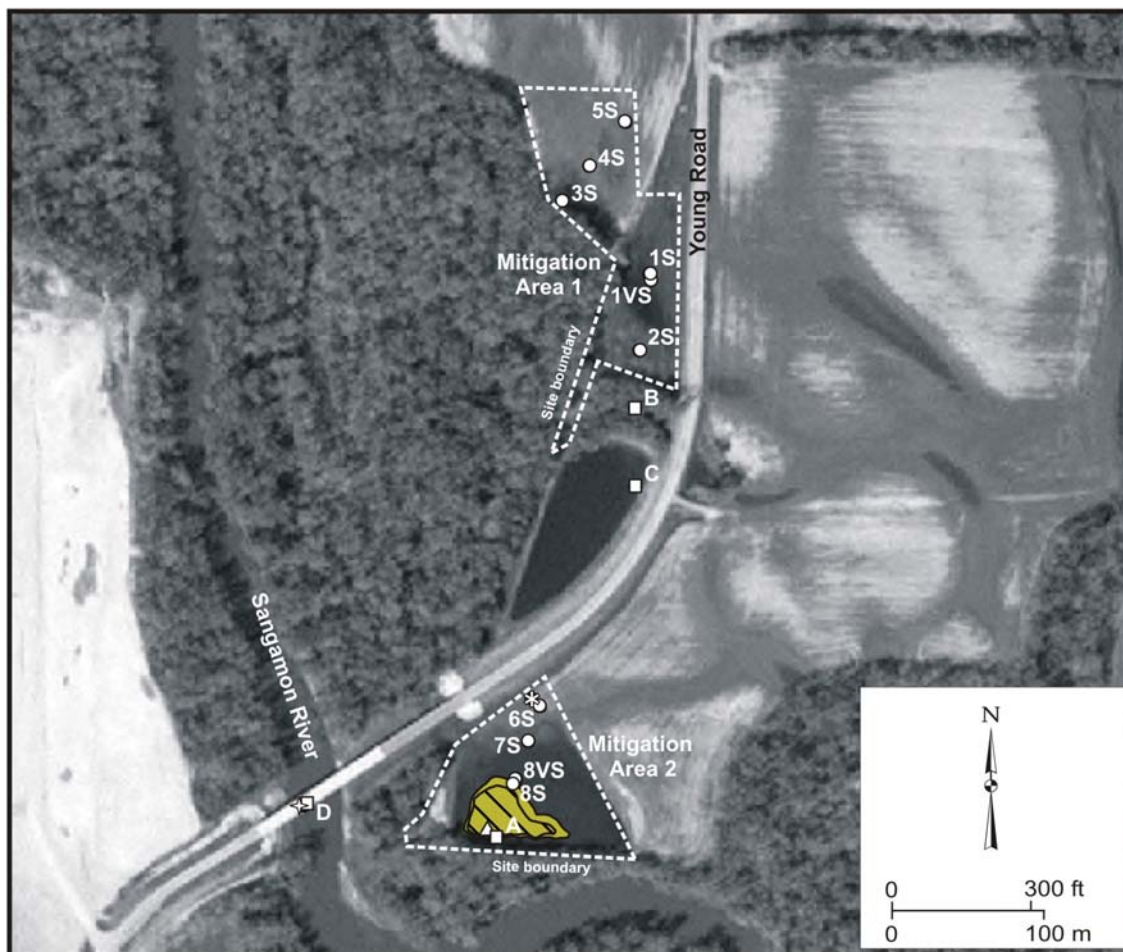
Site 2 is closer to the Sangamon River and receives overflow from the river during times of high water. This year the part of Site 2 which was inundated in 2004 (the excavated area) was dry in September 2005. But, according to the ISGS, part of this site did meet the wetland hydrology criterion at 5%. For this area, the ISGS measured 0.2 ha (0.5 acres) that may meet wetland hydrology at 5%, and 0.1 ha (0.3 acres) that conclusively meets wetland hydrology at 12%. The ISGS did not measure any wetland hydrology in the area of site 2 where shrub stage trees were planted however. The part of site 2 where the shrub stage trees were planted had some places of barren soil which may be attributed to standing water but may also suggest poor soil conditions. This area was also scraped and slopes into the borrow area. Watertable depth at the time of the field investigation at the sites where the shrub stage trees was planted was greater than 1.3 m (50 in). Well data from the ISGS can be found below and in the ISGS report on the site.

Buckhart Wetland Compensation Site [FAS 1637 (TR 478)]

Estimated Areal Extent of 2005 Wetland Hydrology

Based on data collected between September 1, 2004 and September 1, 2005

Map based on USGS digital orthophotographs, Mechanicsburg, SE and SW quarter quadrangles
produced from 4/12/98 aerial photography (ISGS 2004)



2005 Wetland Hydrology



> 12.5% of the growing season



> 5% of the growing season

- monitoring well
- stage gauge
- △ RDS data logger/In-Situ data logger
- * rain gauge
- ◇ sonic data logger

C. Presence of Hydric Soils.

Soils were examined at both sites. Site 1 consists of an old cropped field and also has an old road bed transecting the site. This area is compacted and soil probing was a problem. Most of the site consists of Tice silty clay loam (non-hydric soil). Also, a very small area had Sawmill silty clay loam (hydric soil). This area consisted of 0.11 ha (0.28 acre) out of a total of 1.27 ha (3.14 acre) at the site.

Site 2 consists of a borrow area and also an old road bed. The deep borrow area and a small scraped portion of the tree planting area had hydric soils. The borrow area consisted of 0.6 ha (1.5 acre) and the tree planted area had 0.01 ha (0.03) acre of hydric soils. These areas are identified as 2B and 2A on the aerial photos. The vast majority of the site where the trees were planted does not have hydric soils. The tables below give a brief soil description of the hydric and non-hydric areas of both sites. Hydric areas will be marked on the aerial photograph. Below are typical soil descriptions at the mitigation site.

Site 1 (west of Young Road)

Tice silty clay loam (non-hydric soil, some areas have less of a surface than described here)

<u>Hor-izon</u>	<u>Depth</u>	<u>Matrix Color</u>	<u>Concre-tions</u>	<u>Iron Masses</u>	<u>Pore linings</u>	<u>Iron Deplet.</u>	<u>Clay Deplet.</u>	<u>Tex-ture</u>	<u>Structure</u>
	0-20 in	10YR 3/1						Sil	gr
	20-30 in	10YR 4/3		Ffp 7.5YR 4/6				Sicl	Pr

Sawmill silty clay loam (hydric soil)

<u>Hor-izon</u>	<u>Depth</u>	<u>Matrix Color</u>	<u>Concre-tions</u>	<u>Iron Masses</u>	<u>Pore linings</u>	<u>Iron Deplet.</u>	<u>Clay Deplet.</u>	<u>Tex-ture</u>	<u>Structure</u>
	0-24 in	10YR 3/1						Sicl	Sub bl
	24-36 in	N4/		Ffp 7.5YR 4/6				Sicl	Pr

Site 2 (east of Young Road)

Tice silty clay loam (non-hydric soil, furthestmost north of the river)

<u>Hor-izon</u>	<u>Depth</u>	<u>Matrix Color</u>	<u>Concre-tions</u>	<u>Iron Masses</u>	<u>Pore linings</u>	<u>Iron Deplet.</u>	<u>Clay Deplet.</u>	<u>Tex-ture</u>	<u>Structure</u>
	0-11 in	10YR 3/2 10YR 4/3						sicl	sub bl
	11-19 in	10YR 4/3	Few 10YR 3/1	ffp 7.5YR 4/6				sicl	sub bl
	19-30 in	10YR 4/1		cmp 7.5YR 4/6				sicl	pr

Tice silty clay loam (non-hydric soil, sample taken closest to the river)

<u>Hor- izon</u>	<u>Depth</u>	<u>Matrix Color</u>	<u>Concre- -tions</u>	<u>Iron Masses</u>	<u>Pore linings</u>	<u>Iron Deplet.</u>	<u>Clay Deplet.</u>	<u>Tex- ture</u>	<u>Structure</u>
	0-11 in	10YR 3/2						sil	sub bl
	11-30 in	10YR 4/3 10YR 4/2						sicl	pr

Hydric soil (scraped area)

<u>Hor- izon</u>	<u>Depth</u>	<u>Matrix Color</u>	<u>Concre- -tions</u>	<u>Iron Masses</u>	<u>Pore linings</u>	<u>Iron Deplet.</u>	<u>Clay Deplet.</u>	<u>Tex- ture</u>	<u>Structure</u>
	0-7 in	2.5Y 2.5/1			Mfp 10YR 4/4			sil	gr
	7-20 in	2.5Y 5/1 2.5Y 5/2		Ffp 7.5YR 4/6	Mfp 10YR 4/4			sicl	pr

Hydric soil (borrow area)

<u>Hor- izon</u>	<u>Depth</u>	<u>Matrix Color</u>	<u>Concre- -tions</u>	<u>Iron Masses</u>	<u>Pore linings</u>	<u>Iron Deplet.</u>	<u>Clay Deplet.</u>	<u>Tex- ture</u>	<u>Structure</u>
	0-2 in	10YR 3/1						sil	gr
	2-12	2.5Y 6/1		Mcp 7.5YR 4/6				loam	pr
	12-20 in	2.5Y 5/1		Cfp 7.5YR 4/6 Cmp 10YR 5/8				sil	pr

Wetland determination forms can be found in Appendix 1.

Project Goal #2: The created wetland should meet minimum standards for vegetational cover of a wet floodplain forest.

Performance Criteria:

Tree Density (live planted trees/acre for each tree species). Live trees were counted and species tallied for both sites. At this site 125 live planted trees are required each year. In 2004, 200 trees (125 + 75 additional trees) were planted. The shrub stage trees which were planted at the sites include the following: river birch (*Betula nigra*, FACW), pecan (*Carya illinoensis*, FACW), green ash (*Fraxinus pennsylvanica*, FACW), swamp white oak (*Quercus bicolor*, FACW+), and pin oak (*Quercus palustris*, FACW). The number of individuals per species is presented below. A total of 179 live individuals were counted again this year. Therefore, this project goal is met in 2005.

Site 1

<u>Planted Species</u>	<u>Individuals</u>
<i>Betula nigra</i> (river birch)	22
<i>Carya illinoensis</i> (pecan)	21
<i>Fraxinus pennsylvanica</i> (green ash)	33
<i>Quercus bicolor</i> (swamp white oak)	25
<i>Quercus palustris</i> (pin oak)	<u>32</u>
	133 shrub stage trees/3.14 acres

Site 2

<u>Planted Species</u>	<u>Individuals</u>
<i>Betula nigra</i> (river birch)	07
<i>Carya illinoensis</i> (pecan)	09
<i>Fraxinus pennsylvanica</i> (green ash)	14
<i>Quercus bicolor</i> (swamp white oak)	05
<i>Quercus palustris</i> (pin oak)	<u>11</u>
	46 shrub stage trees/2.66 acres

Summary and Recommendations

This wetland mitigation site is located on the Sangamon River floodplain. The area consists of land previously in crops and abandoned roadbed (Site 1), and an excavated depression (probably a borrow pit) and abandoned roadbed (Site 2). Existing floodplain forest is adjacent. Prior to construction, the vast majority (95%) of this site did not support hydric soils or wetland hydrology. Other than the excavation of the borrow pit, no hydrologic alteration was carried out. Therefore, the majority of the site will encounter difficulty achieving Project Goal 1. Although hydrophytic vegetation is present, hydric soils and wetland hydrology are for the most part absent. At Site 1 no acreage met the three wetland criteria this year.

At Site 2, the inclusion of the borrow pit does provide 0.3 ha (0.8 acres) of wet meadow, but this site lacks any acreage of wet floodplain forest. The wet meadow had a decrease of 0.98 acres of wetland from the previous year. It is our professional opinion, that unless the topography of the site is changed or the hydrology drastically altered, there is little possibility of achieving additional acreage with wetland hydrology and hydric soils.

So far, the site seems likely to meet the second project goal. Actual overall tree survival is high ($179/200 = 89\%$), with well over the required 125 live trees present. Floristic quality was poor at all sites; however, a detailed species list was not possible due to recent mowing. Some natural tree regeneration is present but occurs mainly in the herb layer due to the mowing. The wetland acres that do occur are found in the borrow pit area where no trees are planted. This area is likely to develop into a wet meadow. Out of 5.8 acres, this site currently supports no acres of planted forested wetland restoration this year and 0.8 acres of excavated emergent wetland.

Appendix 1: Wetland Report For FAS 1637 (TR 478) Monitoring Report in Sangamon County

Project Description:

This is a wetland survey conducted for a wetland mitigation monitoring project FAS 1637 (TR 478) in Sangamon County. The following sources were examined while surveying the project area to determine wetland locations and boundaries: United States Geological Survey topographic map and National Wetland Inventory (NWI) map (Mechanicsburg 7.5 minute quadrangle); *Soil Survey of Sangamon County, Illinois*; aerial photographs; *National List of Plant Species That Occur In Wetlands: Illinois*; the 1987 *Corps of Engineers Wetlands Delineation Manual*; and onsite vegetation, soils, topographic and hydrologic indicators. Three routine onsite wetland determinations were completed. Only part of Site 2B satisfied the wetland criteria.

The Floristic Quality Index (FQI), developed by Swink and Wilhelm (1979) and modified by J. Taft, D. Ladd, G.S. Wilhelm, and L.A. Masters (*Erigenia*, 1997), was applied to the vegetation of each wetland. This index should not be used as a substitute for quantitative vegetation analysis in assessing plant communities, but it does provide a measure of the floristic integrity of each site. The FQI was calculated as follows: $I = R/\sqrt{N}$, where R represents the sum of the numerical ratings for all species native to Illinois recorded in the area, and N represents the number of recorded native species. The numerical rating for each species is shown in the species list for the site. The mean-rated quality also was determined by dividing the sum of numerical ratings for all native taxa by the number of recorded native taxa. FQI values of ten or less indicate low natural quality. Sites with FQI values of 20 or more (mean rated quality ≥ 3.0) possess some evidence of native character and may be considered environmental assets.

Wetland 1: This wet meadow/forest restoration is located 9 m (30 ft) west of Young Road and 354 m (1160 ft) north of the Sangamon River. Dominant hydrophytic vegetation and hydric soils were present but the site did not meet the wetland hydrology (ISGS) this year. Thus, this site is not a wetland this year. The NWI did not code this site. This site functions as a water storage area. The FQI is 7.8 with planted trees and the mean-rated quality is 1.9 (FQI is 2.6 and mean-rated quality is 0.75 without planted species). These numbers are indicative of a poor natural quality, but it may not be a true indication of the natural quality of the site since recent mowing made a complete plant species list problematic.

Wetland 2A: This wet meadow/forest restoration is 98 m (320 ft) east of Young Road and 40 m (130 ft) north of the Sangamon River. Dominant hydrophytic vegetation and hydric soils were present but the site did not meet the wetland hydrology (ISGS) this year. Thus, this site is not a wetland this year. The NWI did not code this site as a wetland. This site functions as a water storage area. The FQI is 4.9 and the mean-rated quality is 1.4. These numbers are indicative of a poor natural quality, but it may not be a true indication of the natural quality of the site since recent mowing made a complete plant species list problematic.

Wetland 2B: This wet meadow/forest restoration is located 40 m (130 ft) southeast of Young Road and 30 m (100 ft) north of the Sangamon River. Dominant hydrophytic vegetation, hydric soils, and wetland hydrology are present in some areas of this site; thus, this site meets the three criteria of a wetland. The NWI did not code this site as a wetland. This site functions as a water storage area. The FQI is 4.9 and the mean-rated quality is 1.4. These numbers are indicative of a poor natural quality, but it may not be a true indication of the natural quality of the site since recent mowing made a complete plant species list problematic.

Watershed Data

The Sangamon River in the project area has a width of 36.5 m (120 ft) and had a moderate flow rate. This stream consists of a clay-silt substrate. This project is located in the Sangamon River-Upper basin and has a USGS hydrologic unit code of 7130006.

Literature Cited

- Coopridge, M., 1999. Wetland Mitigation Monitoring Report for TR 478
Technical report submitted to the Illinois Department of Transportation. 23 pp.
- Environmental Laboratory. 1987. Corps of Engineers wetland determination manual.
Department of the Army, Waterways Experiment Station, Corps of Engineers,
Vicksburg, MS. Technical Report Y-87-1.
- Reed, P. B., Jr. 1988. National List of plant species that occur in wetlands: Illinois. U.
S. Fish and Wildlife Service, National Wetlands Inventory. NERC-88/18.13.
- Steinkamp, J.F. 1980. Soil survey of Sangamon County, Illinois. United States
Department of Agriculture-Soil Conservation Service in cooperation with Illinois
Agricultural Experiment Station. Illinois Agricultural Experiment Station Soil
Report No. 111. 139 pp. + maps.
- USDA, Natural Resources Conservation Service. 1998. Field Indicators of Hydric Soils
in the United States. 30 pages

ROUTINE ON-SITE WETLAND DETERMINATION
Wetland 1 (page 1 of 4)

Field Investigators: Keene, Busemeyer, and Larimore

Date: 20 September 2005

Job No.: NA

Project Name: FAS 1637 (TR 478)

State: Illinois

County: Sangamon

Applicant: IDOT District 6

Site Name: Wet meadow/Forest restoration

Legal Description: SW/4, NW/4, Section 9 T. 15N., R. 3W.

Location: 9 m (30 ft) west of Young Road and 354 m (1160 ft) north of the Sangamon River

Do normal environmental conditions exist at this site?

Yes: X

No:

Have the vegetation, soils, or hydrology been significantly disturbed?

Yes:

No: X

VEGETATION

Dominant Plant Species

Indicator Status

Stratum

1. *Aster simplex*

FACW

herb

2. *Iva annua*

FAC

herb

3. *Digitaria sanguinalis*

FACU

herb

Percentage of dominant species that are OBL, FACW, FAC+, or FAC: 67%

Hydrophytic vegetation: Yes: X No:

Rationale: More than 50% of the dominants are OBL, FACW, FAC+, or FAC.

SOILS

Series and phase: Sawmill silty clay loam

On Sangamon County hydric soils list? Yes: X No:

Is the soil a histosol? Yes: No: X Histic epipedon present? Yes: No: X

Redox concentrations: Yes: X No: Redox depletions: Yes: X No:

Matrix color: N 4/

Other indicators: This soil is found in a depressional area.

Hydric soils: Yes: X No:

Rationale: The Natural Resources Conservation Service classifies Sawmill silty clay loam as having aquic conditions. This soil has iron masses and an iron depleted matrix. These characteristics are evidence of a hydric soil.

ROUTINE ON-SITE WETLAND DETERMINATION
Wetland 1 (page 2 of 4)

Field Investigators: Keene, Bussemeyer, and Larimore
 Date: 20 September 2005
 Job No.: NA Project Name: FAS 1637 (TR 478)
 State: Illinois County: Sangamon Applicant: IDOT District 6
 Site Name: Wet meadow/Forest restoration
 Legal Description: SW/4, NW/4, Section 9 T. 15N., R. 3W.
 Location: 9 m (30 ft) west of Young Road and 354 m (1160 ft) north of the
 Sangamon River

HYDROLOGY

Inundated: Yes: No: X Depth of standing water: NA

Depth to saturated soil: > 1.3 m (50 in)

Overview of hydrological flow through the system: This site is hydrologically influenced by precipitation, sheet flow, and possible overflow from the Sangamon River. Water leaves the site via evapotranspiration and groundwater recharge.

Size of watershed: approximately 3279 km² (1266 mi²)

Other field evidence observed: The site is found in a depressional area.

Wetland hydrology: Yes: No: X

Rationale: Well data collected by the ISGS could not substantiate that this site is inundated or saturated for a sufficient duration to satisfy the wetland hydrology criterion.

DETERMINATION AND RATIONALE:

Is the site a wetland?	Yes: No: X
Rationale for decision:	Although dominant hydrophytic vegetation and hydric soils are present, this site lacks wetland hydrology. Thus, we determined that this site is not a wetland. The NWI did not code this site as a wetland.

ROUTINE ON-SITE WETLAND DETERMINATION
Wetland 1 (page 3 of 4)

Field Investigators: Keene, Bussemeyer, and Larimore
 Date: 20 September 2005
 Job No.: NA Project Name: FAS 1637 (TR 478)
 State: Illinois County: Sangamon Applicant: IDOT District 6
 Site Name: Wet meadow/Forest restoration
 Legal Description: SW/4, NW/4, Section 9 T. 15N., R. 3W.
 Location: 9 m (30 ft) west of Young Road and 354 m (1160 ft) north of the
 Sangamon River

SPECIES LIST

Scientific name	Common name	Stratum	Wetland indicator status	CC*
<i>Acer saccharinum</i>	silver maple	herb	FACW	1
<i>Ambrosia trifida</i>	giant ragweed	herb	FAC+	0
<i>Aster simplex</i>	panicked aster	herb	FACW	3
<i>Betula nigra</i>	red birch	shrub (planted)	FACW	4
<i>Campsis radicans</i>	trumpet creeper	shrub, herb	FAC	2
<i>Carya illinoensis</i>	pecan	shrub (planted)	FACW	6
<i>Chamaesyce humistrata</i>	milk spurge	herb	FACW	1
<i>Cyperus</i> sp.	sedge	herb	----	--
<i>Digitaria sanguinalis</i>	hairy crab grass	herb	FACU	**
<i>Echinochloa crus-galli</i>	barnyard grass	herb	FACW	**
<i>Eupatorium serotinum</i>	late boneset	herb	FAC+	1
<i>Fraxinus pennsylvanica</i>	green ash	shrub (planted)	FACW	2
<i>Iva annua</i>	marsh elder	herb	FAC	0
<i>Panicum dichotomiflorum</i>	fall panicum	herb	FACW-	0
<i>Phyla lanceolata</i>	fog-fruit	herb	OBL	1
<i>Physalis subglabrata</i>	smooth ground cherry	herb	UPL	0
<i>Plantago rugelii</i>	red-stalked plantain	herb	FAC	0
<i>Quercus bicolor</i>	swamp white oak	shrub (planted)	FACW+	7
<i>Quercus palustris</i>	pin oak	shrub (planted)	FACW	4
<i>Rumex crispus</i>	curly dock	herb	FAC+	**
<i>Setaria glauca</i>	pigeon grass	herb	FAC	**
<i>Sida spinosa</i>	prickly sida	herb	FACU	**
<i>Solanum carolinense</i>	horse-nettle	herb	FACU-	0

* Coefficient of Conservatism (Taft et al. 1997)

** Non-native species

FQI = $9/\sqrt{12} = 9/3.5 = 2.6$ (without planted species)

Mean-rated quality = $9/12 = 0.75$ (without planted species)

FQI = $32/\sqrt{17} = 32/4.1 = 7.8$ (with planted species)

Mean-rated quality = $32/17 = 1.9$ (with planted species)

ROUTINE ON-SITE WETLAND DETERMINATION
Wetland 1 (page 4 of 4)

Field Investigators: Keene, Busemeyer, and Larimore

Date: 20 September 2005

Job No.: NA

Project Name: FAS 1637 (TR 478)

State: Illinois

County: Sangamon

Applicant: IDOT District 6

Site Name: Wet meadow/Forest restoration

Legal Description: SW/4, NW/4, Section 9 T. 15N., R. 3W.

Location: 9 m (30 ft) west of Young Road and 354 m (1160 ft) north of the
Sangamon River

Determined by: Dennis J. Keene (soils and hydrology)
Dan Busemeyer, and Rick Larimore (vegetation
and hydrology)
Illinois Natural History Survey
1816 South Oak St.
Champaign, Illinois 61820
(217) 244-0873 (Keene)

ROUTINE ON-SITE WETLAND DETERMINATION
Wetland 2A (page 1 of 3)

Field Investigators: Keene, Busemeyer, and Larimore

Date: 20 September 2005

Job No.: NA

Project Name: FAS 1637 (TR 478)

State: Illinois

County: Sangamon

Applicant: IDOT District 6

Site Name: Wet meadow/Forest restoration

Legal Description: NW/4, SW/4, Section 9 T. 15N., R. 3W.

Location: 98 m (320 ft) southeast of Young Road and 40 m (130 ft) north of the Sangamon River

Do normal environmental conditions exist at this site?

Yes: X

No:

Have the vegetation, soils, or hydrology been significantly disturbed?

Yes:

No: X

VEGETATION

Dominant Plant Species	Indicator Status	Stratum
1. <i>Echinochloa crus-galli</i>	FACW	herb
2. <i>Panicum dichotomiflorum</i>	FACW-	herb
3. <i>Phyla lanceolata</i>	OBL	herb

Percentage of dominant species that are OBL, FACW, FAC+, or FAC: 100%

Hydrophytic vegetation: Yes: X No:

Rationale: More than 50% of the dominants are OBL, FACW, FAC+, or FAC.

SOILS

Series and phase: Undetermined (scraped excavated area)

On Sangamon County hydric soils list? Yes: X No: Undet: X

Is the soil a histosol? Yes: No: X Histic epipedon present? Yes: No: X

Redox concentrations: Yes: X No: Redox depletions: Yes: X No:

Matrix color: 2.5Y 5/1 and 5/2

Other indicators: This soil is found in a depressional area.

Hydric soils: Yes: X No:

Rationale: This soil has pore linings, iron masses, and an iron depleted matrix. These characteristics are evidence of a hydric soil.

ROUTINE ON-SITE WETLAND DETERMINATION
Wetland 2A (page 2 of 3)

Field Investigators: Keene, Busemeyer, and Larimore
 Date: 20 September 2005
 Job No.: NA Project Name: FAS 1637 (TR 478)
 State: Illinois County: Sangamon Applicant: IDOT District 6
 Site Name: Wet meadow/Forest restoration
 Legal Description: NW/4, SW/4, Section 9 T. 15N., R. 3W.
 Location: 98 m (320 ft) southeast of Young Road and 40 m (130 ft) north of the Sangamon River

HYDROLOGY

Inundated: Yes: No: X Depth of standing water: NA

Depth to saturated soil: > 50 in (1.3 m)

Overview of hydrological flow through the system: This site is hydrologically influenced by precipitation, overflow from the Sangamon River, and sheet flow from higher surrounding areas. Water leaves the site via evapotranspiration and groundwater recharge.

Size of watershed: approximately 3279 km² (1266 mi²)

Other field evidence observed: This site is found in a low area.

Wetland hydrology: Yes: No: X

Rationale: Well data collected by the ISGS could not substantiate that this site is inundated or saturated for a sufficient duration to satisfy the wetland hydrology criterion.

DETERMINATION AND RATIONALE:

Is the site a wetland?	Yes: No: X
Rationale for decision:	Although dominant hydrophytic vegetation and hydric soils are present, this site lacks wetland hydrology. Thus, we determined that this site is not a wetland. The NWI did not code this site as a wetland.

ROUTINE ON-SITE WETLAND DETERMINATION
Site 2A (page 3 of 3)

Field Investigators: Keene, Plocher, Busemeyer, and Larimore
 Date: 30 September 2004 and 17 November 2004
 Job No.: NA Project Name: FAS 1637 (TR 478)
 State: Illinois County: Sangamon Applicant: IDOT District 6
 Site Name: Wet meadow/Forest restoration
 Legal Description: NW/4, SW/4, Section 9 T. 15N., R. 3W.
 Location: 98 m (320 ft) southeast of Young Road and 40 m (130 ft) north of the Sangamon River

SPECIES LIST

Scientific name	Common name	Stratum	Wetland indicator status	CC*
<i>Ambrosia trifida</i>	giant ragweed	herb	FAC+	0
<i>Aster simplex</i>	panicled aster	herb	FACW	3
<i>Campsis radicans</i>	trumpet creeper	vine	FAC	2
<i>Digitaria sanguinalis</i>	hairy crab grass	herb	FACU	**
<i>Echinochloa crus-galli</i>	barnyard grass	herb	FACW	**
<i>Erigeron annuus</i>	annual fleabane	herb	FAC-	1
<i>Panicum dichotomiflorum</i>	fall panicum	herb	FACW-	0
<i>Phyla lanceolata</i>	fog-fruit	herb	OBL	1
<i>Polygonum pensylvanicum</i>	giant smartweed	herb	FACW+	1
<i>Rumex altissimus</i>	pale dock	herb	FACW-	2
<i>Setaria faberi</i>	giant foxtail	herb	FACU+	**
<i>Taraxacum officinale</i>	common dandelion	herb	FACU	**
<i>Trifolium pratense</i>	red clover	herb	FACU+	**
<i>Verbascum thapsus</i>	woolly mullein	herb	UPL	**

* Coefficient of Conservatism (Taft et al. 1997)

** Non-native species

FQI = $10/\sqrt{8} = 10/2.8 = 3.6$

Mean-rated quality = $10/8 = 1.3$

Determined by: Dennis J. Keene (soils and hydrology)
 Dan Busemeyer, and Rick Larimore (vegetation
 and hydrology)
 Illinois Natural History Survey
 1816 S. Oak St.
 Champaign, Illinois 61820
 (217) 244-0873 (Keene)

ROUTINE ON-SITE WETLAND DETERMINATION
Wetland 2B (page 1 of 3)

Field Investigators: Keene, Busemeyer, and Larimore

Date: 20 September 2005

Job No.: NA

Project Name: FAS 1637 (TR 478)

State: Illinois

County: Sangamon

Applicant: IDOT District 6

Site Name: Wet meadow/Forest restoration

Legal Description: NW/4, SW/4, Section 9 T. 15N., R. 3W.

Location: 40 m (130 ft) southeast of Young Road and 30 m (100 ft) north of the Sangamon River

Do normal environmental conditions exist at this site?

Yes: X

No:

Have the vegetation, soils, or hydrology been significantly disturbed?

Yes:

No: X

VEGETATION

Dominant Plant Species	Indicator Status	Stratum
1. <i>Echinochloa crus-galli</i>	FACW	herb
2. <i>Phyla lanceolata</i>	OBL	herb
3. <i>Polygonum pensylvanicum</i>	FACW+	herb

Percentage of dominant species that are OBL, FACW, FAC+, or FAC: 100%

Hydrophytic vegetation: Yes: X No:

Rationale: More than 50% of the dominants are OBL, FACW, FAC+, or FAC.

SOILS

Series and phase: Undetermined (scraped excavated area)

On Sangamon County hydric soils list? Yes: X No: Undet: X

Is the soil a histosol? Yes: No: X Histic epipedon present? Yes: No: X

Redox concentrations: Yes: X No: Redox depletions: Yes: X No:

Matrix color: 2.5Y 6/1

Other indicators: This soil is found in a depressional area.

Hydric soils: Yes: X No:

Rationale: This soil has pore linings, iron masses, and an iron depleted matrix. These characteristics are evidence of a hydric soil.

ROUTINE ON-SITE WETLAND DETERMINATION
Wetland 2B (page 2 of 3)

Field Investigators: Keene, Busemeyer, and Larimore
 Date: 20 September 2005
 Job No.: NA Project Name: FAS 1637 (TR 478)
 State: Illinois County: Sangamon Applicant: IDOT District 6
 Site Name: Wet meadow/Forest restoration
 Legal Description: NW/4, SW/4, Section 9 T. 15N., R. 3W.
 Location: 40 m (130 ft) southeast of Young Road and 30 m (100 ft) north of the Sangamon River

HYDROLOGY

Inundated: Yes: No: X Depth of standing water: NA
 Depth to saturated soil: > 50 in (1.3 m)
 Overview of hydrological flow through the system: This site is hydrologically influenced by precipitation, overflow from the Sangamon River, and sheet flow from higher surrounding areas. Water leaves the site via evapotranspiration and groundwater recharge.
 Size of watershed: approximately 3279 km² (1266 mi²)
 Other field evidence observed: This site is found in a low area.

Wetland hydrology: Yes: X No:
 Rationale: Low topography is evidence indicating that this site is inundated or saturated for a sufficient duration to satisfy the wetland hydrology criterion.

DETERMINATION AND RATIONALE:

Is the site a wetland?	Yes: X No:
Rationale for decision:	Based on the presence of dominant hydrophytic vegetation, hydric soils, and wetland hydrology, we determined that this site is a wetland. The NWI did not code this site as a wetland.

ROUTINE ON-SITE WETLAND DETERMINATION
Wetland 2B (page 3 of 3)

Field Investigators: Keene, Busemeyer, and Larimore
 Date: 20 September 2005
 Job No.: NA Project Name: FAS 1637 (TR 478)
 State: Illinois County: Sangamon Applicant: IDOT District 6
 Site Name: Wet meadow/Forest restoration
 Legal Description: NW/4, SW/4, Section 9 T. 15N., R. 3W.
 Location: 40 m (130 ft) southeast of Young Road and 30 m (100 ft) north of the
 Sangamon River

SPECIES LIST

Scientific name	Common name	Stratum	Wetland indicator status	CC*
<i>Acer saccharinum</i>	silver maple	herb	FACW	1
<i>Campsis radicans</i>	trumpet creeper	shrub, herb	FAC	2
<i>Chamaesyce</i> sp.	spurge	herb	---	-
<i>Echinochloa crus-galli</i>	barnyard grass	herb	FACW	**
<i>Erigeron annuus</i>	annual fleabane	herb	FAC-	1
<i>Eupatorium coelestinum</i>	blue boneset	herb	FAC+	3
<i>Iva annua</i>	marsh elder	herb	FAC	0
<i>Oenothera biennis</i>	evening primrose	herb	FACU	1
<i>Panicum dichotomiflorum</i>	fall panicum	herb	FACW-	0
<i>Phyla lanceolata</i>	fog-fruit	herb	OBL	1
<i>Plantago rugelii</i>	red-stalked plantain	herb	FAC	0
<i>Polygonum pensylvanicum</i>	giant smartweed	herb	FACW+	1
<i>Populus deltoides</i>	eastern cottonwood	herb	FAC+	2
<i>Ulmus americana</i>	American elm	herb	FACW-	5

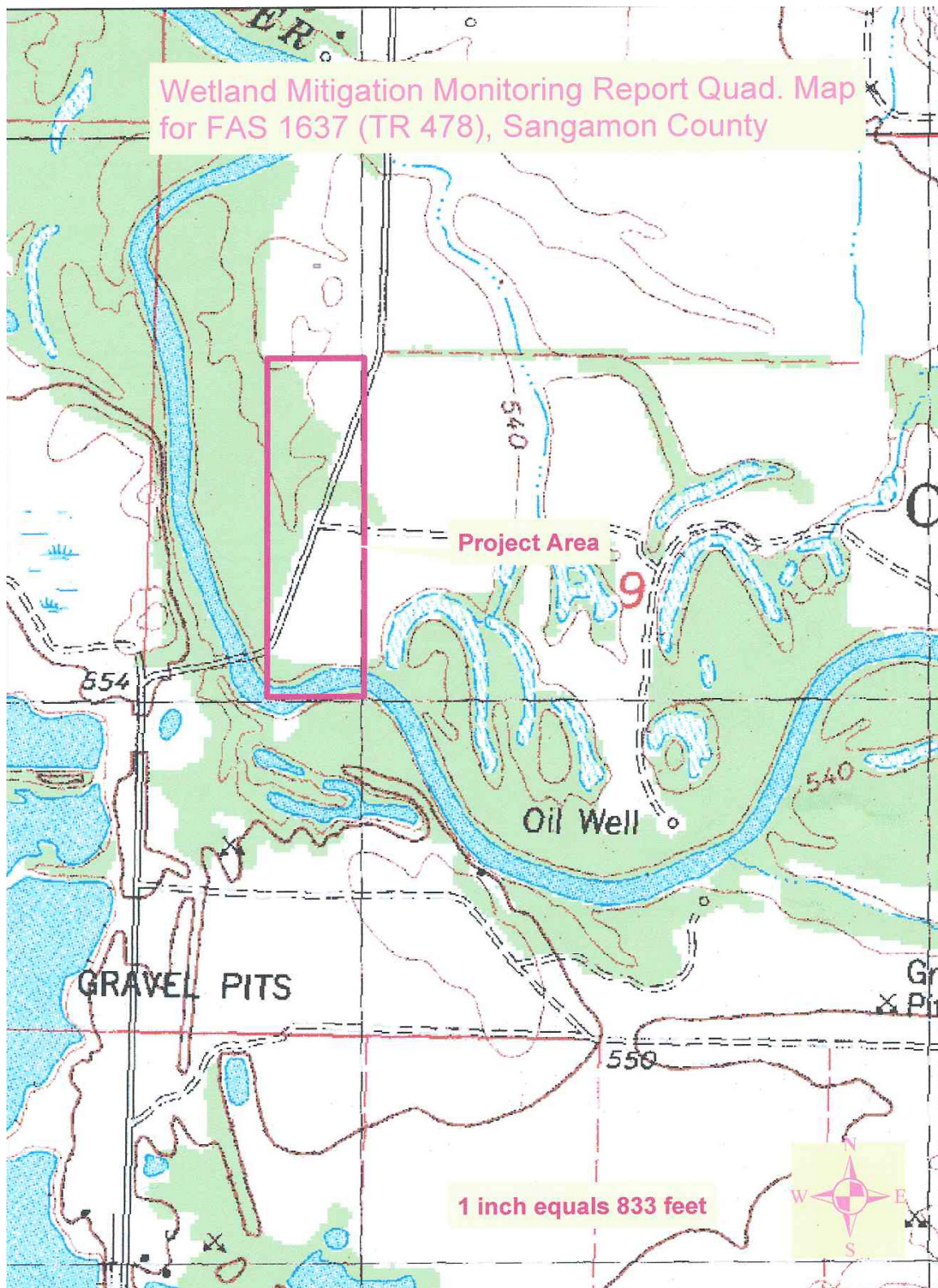
* Coefficient of Conservatism (Taft et al. 1997)

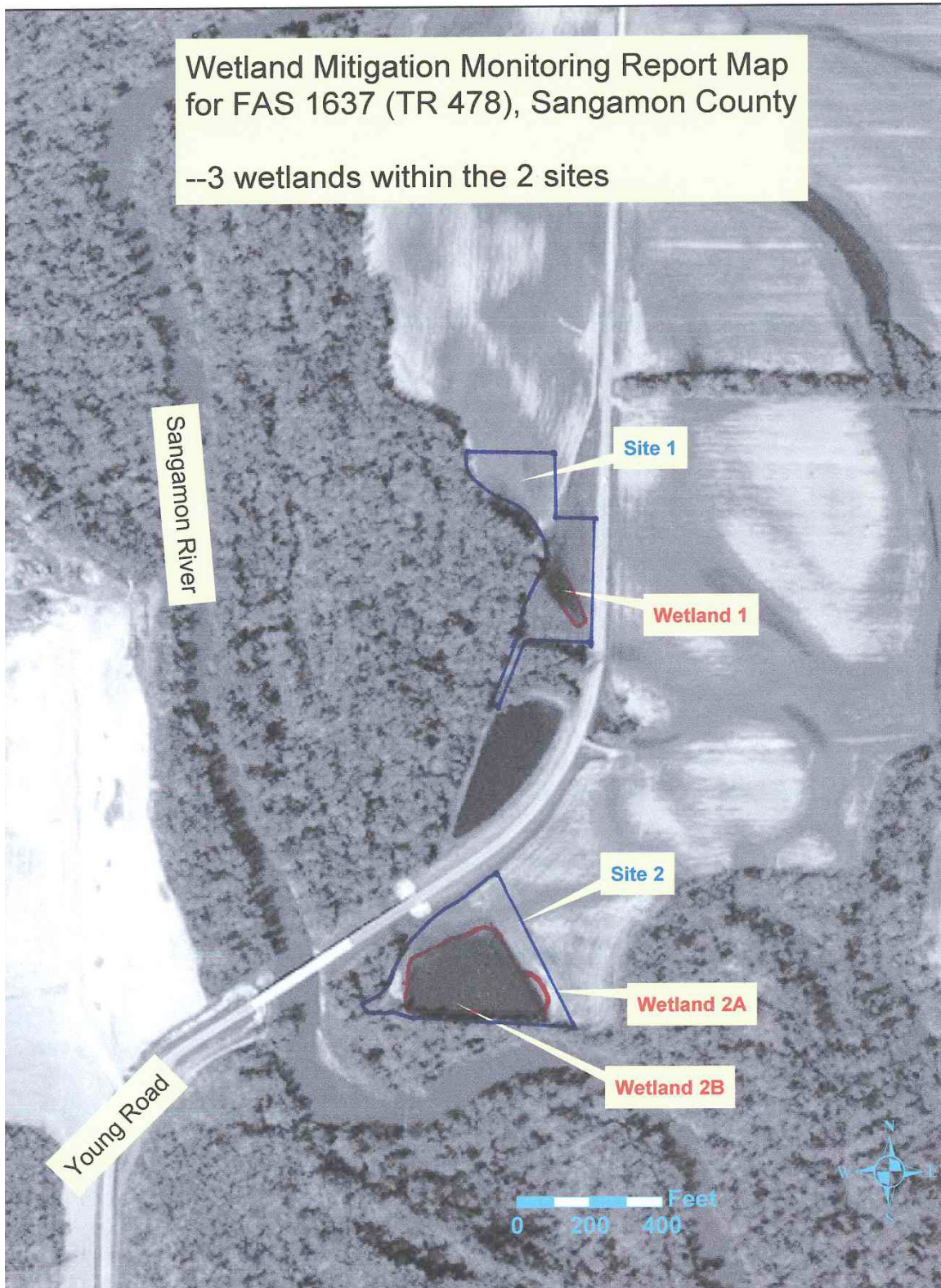
** Non-native species

FQI = $17/\sqrt{12} = 17/3.5 = 4.9$

Mean-rated quality = $17/12 = 1.4$

Determined by: Dennis J. Keene (soils and hydrology)
 Dan Busemeyer, and Rick Larimore (vegetation
 and hydrology)
 Illinois Natural History Survey
 1816 S. Oak St.
 Champaign, Illinois 61820
 (217) 244-0873 (Keene)





Appendix 2:
Wetland Mitigation Monitoring Photos for
FAS 1637 (TR 478)



Photos of Site 1, facing north





Photo of site 2, facing southeast



Photo of site 2, facing southwest on old road bed